

**WHAT IS CLAIMED IS:**

- Sub B1  
2/1  
A
1. An article comprising:  
a disk with a circular opening in the center of the disk; and  
a fastener adapted to concentrically attach the disk to the particle outlet opening  
of a classifier wheel.
  2. An article in accordance with **claim 1**, wherein the thickness of the disk is  
thicker near the particle outlet and thinner near the periphery of the disk.
  3. An article in accordance with **claim 1**, further comprising a lip or rim adjacent  
to the circular opening which has a thickness of from about 1.5 to about 5 times the  
thickness of the disk.
  4. An article in accordance with **claim 1**, wherein the diameter of the circular  
opening is fixed.
  5. An article in accordance with **claim 1**, wherein the diameter of the circular  
opening is adjustable.
  6. An article in accordance with **claim 1**, wherein the diameter of the circular  
opening is from about 1 centimeter to about 10,000 centimeters.
  7. An article in accordance with **claim 1**, wherein the diameter of the disk is from  
about 10 centimeters to about 1,000 centimeters.
  8. An article in accordance with **claim 1**, wherein the fastener is one or more  
bolts or screws.
  9. An article in accordance with **claim 1**, wherein the fastener is one or more  
clamps.

Sub 17

10. A classifier wheel comprising:  
an upper solid surface and a lower surface with a first circular opening therein;  
a plurality of blade vanes connecting the upper surface to the lower surface at the peripheral edges of the upper and lower surfaces, and  
an article in accordance with **claim 1** fixed to the lower surface which forms a second circular opening within the first circular opening and reduces the diameter of the first circular opening.

11. A classifier wheel in accordance with **claim 10**, wherein the wheel has an internal height(H) of from about 10.0 centimeters to about 20.0 centimeters.

12. A classifier wheel in accordance with **claim 10**, wherein the wheel has a lower surface diameter(D) of from about 20.0 centimeters to about 30.5 centimeters.

13. A classifier wheel in accordance with **claim 10**, wherein the second circular opening has a diameter(d) of from about 5.0 centimeters to about 13.5 centimeters.

14. A classifier wheel in accordance with **claim 10**, wherein the upper surface and the lower surface are substantially parallel.

15. A classifier wheel in accordance with **claim 10**, wherein the upper surface and the lower surface are inwardly curvilinear from about the peripheral edges of the wheel to about the center of the wheel.

16. An apparatus for the classification of solid particulates entrained in a fluid, comprising:  
a housing provided with a feed inlet, a fine fraction outlet, and a coarse fraction outlet; and  
a classifier wheel in accordance with **claim 10**.

Sub 17

17. An apparatus in accordance with **claim 16**, wherein the fluid is compressed air.

18. An apparatus in accordance with **claim 16**, wherein the solid particulates are a toner formulation comprising a pigment and a resin.

19. A process for separating and classifying particulates in an apparatus in accordance with **claim 16**, comprising:

rotating the classifier wheel at speed of from about 500 to about 5,000 revolutions per minute; and

introducing to the apparatus a solid particle feed comprising a fluid stream containing particulates of from about 0.1 to about 10,000 microns in diameter, wherein the fine particles in the particle feed move toward the center of the wheel and thereafter exit the classifier wheel and housing via the fine fraction outlet opening, and the coarse particles move toward the periphery of the wheel and exit the wheel via the coarse fraction outlet.

20. A process in accordance with **claim 19**, wherein the particulates in the fluid stream are continuously classified within the apparatus to permit a separated fine particle fraction with a weight average particle diameter of from about 1 to about 10 micrometers and a standard deviation of from about 0.1 to about 0.5 micrometers.

21. A process in accordance with **claim 20**, wherein from about 10 to about 10,000 pounds of the fine particle fraction is separated in from about 1 to about 24 hours.

22. A kit comprising:  
a disk with a circular opening in the center of the disk; and  
at least one fastener adapted to attach the disk to the fine particle outlet of a classifier wheel.

Sub G2  
M

23. An article in accordance with **claim 1**, wherein the adjustment of the diameter of the circular opening is accomplished with a centrifugal value.

00/2260-4880/960